



Maine Farm Safety Program

Bulletin #2304

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Barn and Manure Storage Safety

Most farms have barns. They tend to be overlooked when doing safety checks. Barns pose many safety hazards to workers and visitors. With a little time and effort, many of these hazards can be lessened or eliminated.

should be present at hay chutes to prevent anyone from accidentally falling into them. Repair all trap doors or railings that are not sturdy. Make a trap door for any unguarded hay chute. This will cover the chute when it is not in use.

◆ **General Housekeeping**

Keep floors clean and dry to avoid slips and falls. Replace old and worn planks in the floor to prevent falls or breakthroughs. Stow away hay ropes and pitchforks to avoid accidental hangings and puncture wounds. Don't leave baling twine, hay wire and old fence wire hanging. Shield controls for augers in cattle barns and electrical boxes in humid areas like a milk house. Repair trap doors and railings. Keep all cleaning and veterinary supplies out of reach of animals and children.

◆ **Hay Storage**

Guard all hay chutes in the hay mow. Trap doors, cages or railings

Barn and Manure Storage Safety

- ◆ Keep floors clean and dry.
- ◆ Guard chutes, trap doors and other possible hazards.
- ◆ Avoid storing moldy or damp hay indoors.
- ◆ Ventilate to reduce dust and mold.
- ◆ Farm ponds and manure lagoons should be fenced and posted with warning signs.
- ◆ Ventilate manure pits during agitation with a cycle of detergent and water only.



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To help prevent mold growth, store only fully dried hay at a moisture content appropriate for the length of storage in a structure that prevents moisture from entering. Large round bales tend to contain mold spores, especially when stored outside. Use caution and respiratory equipment if necessary when feeding. Moldy hay can heat up and can pose respiratory hazards to humans and animals.

◆ **Dusts in Livestock Confinement**

Moving, handling, or feeding animals can create air quality problems with dust. Inadequate or improper ventilation or confinement compounds this problem. The seasons pose more

problems. Tightly closed buildings in cold weather do not provide enough circulation and many contain poorly vented or improperly functioning heaters. In warm weather, fans and

open doors create wind that kicks up dust. Regular cleaning with a power washer and installing floors that are as self-cleaning as possible can reduce dust levels. Feed falls a shorter distance with extended spouts on automatic feed delivery

systems and produces less dust. Covers on feed spouts, pelleted feed, or the addition of fat to feed will help reduce dust levels. Keep ventilation systems in top working order.

◆ **Manure Pits**

On-farm storage of animal manure is becoming more common in Maine every year. Some systems for storing the manure are more dangerous than others. Below-ground storage facilities, or pits, are more hazardous than above-ground structures. Systems that are covered by lids, caps or slotted floors are more hazardous than uncovered systems. Thus, the most dangerous storage facilities are pits located within buildings or directly beneath livestock. Pump-out pits or caps can also be very hazardous. Failed storage structures may also cause significant losses of fish and other aquatic species if near streams or lakes.

Toxic gases such as hydrogen sulfide (H_2S), carbon dioxide, ammonia and methane are present in every manure storage area. Covered or enclosed tank facilities present the greatest danger, especially when manure is being agitated or pumped out of the structure. Little gas is produced or accumulates when the manure is still and natural air movement or ventilation from fans prevents gas buildup. If manure pits are underneath the barn, there is

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great risk. Hydrogen sulfide produced during agitation can kill people and animals within minutes at high concentrations. Never enter a manure pit during or just after agitation because there is always the possibility of deadly concentration of this gas. Plumbing and pumping equipment should be installed so that it can be easily removed for repairs.

Before agitation, take steps to ensure the welfare of the animals and people working in the area. Remove all people and animals if possible. If animals cannot be removed, maximize ventilation and agitate slurry very slowly at first. Monitor the condition of the animals. If the animals act restless or agitated or abnormal, stop the agitation immediately and ventilate the area.

Take safety precautions when entering manure pits. It is easy to be overcome by the gases coming from the pit. Never enter a manure pit or spreader tank alone. Wear an air-supplying respirator that you have been trained to use and maintain. Also wear a safety harness and lifeline connected to a stationary object outside the pit with at least two people ready to pull you out.

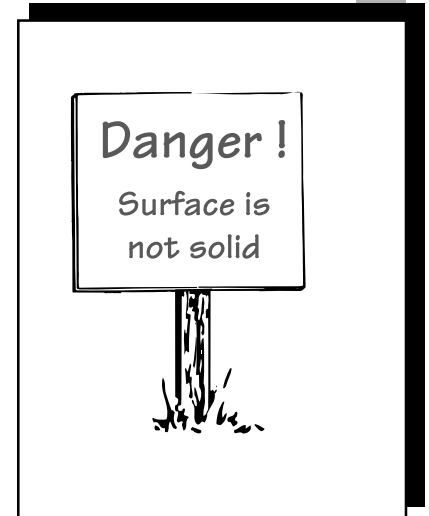
When someone collapses in a pit, gases are so concentrated that it is suicidal for anyone else to enter without a self-contained breathing apparatus. The only reasonable

immediate action is to ventilate the storage area and notify rescue personnel who can bring the proper equipment. Barn fans and silo blowers may be activated to provide ventilation, but do not lower fans into the pit because this could cause methane explosion.

◆ **Manure Lagoons and Farm Ponds**

Install and maintain a fence around the area of farm ponds and manure lagoons. An adequate fence will keep unsupervised visitors away and prevent drownings. Liquid manure can become crusty on top and look solid enough to walk on. It is also a good idea to post warning signs near manure lagoons which state: "Danger — Surface is not solid."

Construct manure storage pits outside confinement buildings, above or below ground, and in a way that gases cannot move back into the building. Make sure that pumping equipment can be quickly and easily removed for repairs or adjustment. Attach a hinge or chain to covers or lids on storage areas to prevent them from falling into the storage pit.





This Maine Farm Safety Fact Sheet is part of an educational fact sheet series produced by the University of Maine Cooperative Extension. For more information on farm safety, contact your county Extension office.



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